

BEHAVIORAL EFFECTS OF HEMI-SYNC®: EMBEDDED MEDITATION MUSIC ON A HORSE

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In her 1990 article, Guttman proposed using studies with species other than humans to determine whether listening to binaural beat technology, namely Hemi-Sync, would synchronize the left and right brain hemispheres and also result in a similar array of altered behavioral effects as experienced by humans. A number of beneficial applications of the use of Hemi-Sync for nonhuman animal species also were proposed. The first experimental test of this proposal, using an equine subject, was reported in Guttman's 1991 article. This study showed that the equine brain became synchronized (as shown by Fourier-transformed EEGs) as a result of listening to a music tape embedded with binaural beats.

The study reported here asked whether discernible behavioral differences could be detected in a horse listening to meditation music compared with listening to the same meditation music embedded with Hemi-Sync.

Methods

This study was done in the home upper pasture of the equine subject, Kerry Mist. It is important to note the environmental conditions on the day of the study because the subject usually expresses particular behaviors under such conditions. The study was done in the early afternoon of a very humid, hot (95°F) day with an electrical storm approaching rapidly. Under such circumstances, this horse usually moved inside her shelter in the lower pasture. Thus, the conditions were unfavorable for inducing the expression of a "calm behavior." Setting conditions that are opposed to a potential experiment-induced effect controls against the experimenter creating a self-fulfilling prophecy. Kerry Mist's stable mate, Bonny Dick, was allowed to roam freely in the pasture during the study, but chose to stay close to Kerry Mist for the entire study time.

Kerry Mist was outfitted with a hood to which was sewn headphones that were attached to a small, portable tape player. Care was taken not to touch the horse's ears with the headphones. The tape player was secured to Kerry Mist's neck with veterinary tape. The initial experiment

plan was to play two tapes in sequence for thirty minutes each. The entire experiment was recorded on videotape archive with date and time and with audio behavioral observations by Bliley. Bliley stood near the subject for the duration of the study and was unaware of the music tape that Guttman selected for play. The meditation music tapes played to Kerry Mist were selected at the last minute and their identities were known only by Guttman. For this study, the tapes selected were (1) *Inner Journey* (without Hemi-Sync) by Mohammad Sadigh—a powerful meditation composition—and (2) *Inner Journey* with Hemi-Sync (primarily Theta and secondarily Delta frequencies). There are no discernible differences in the audible sounds of the two tapes.

The rapidly approaching electrical storm (heralded by a clap of thunder and a bolt of lightning about a mile away) punctuated the first-selected tape after ten minutes of play. To assure at least some listening time on the second tape before the storm reached the pasture, the second tape was substituted at that time. After playing the second tape for eleven minutes, another, much closer, clap of thunder and bolt of lightning made a final punctuation to the tape portion of the experiment.

Results

At the start of the study, Kerry Mist was not agitated; she had been exposed to the headphone-containing hood previously and the three new people involved in this study and now accepted the three virtual strangers walking around her. She was not agitated by movements of her free-roaming stable mate in the pasture. As we were about to begin the experimental portion of the study, she exhibited the classic equine “relax stance” (one back leg raised and relaxed). The stable mate, Bonny Dick, came close and remained facing her tail from a distance of about one foot for the duration of the study.

During the playing of tape (1), Kerry Mist maintained the relax stance and stayed alert to the tape music, as evidenced by orienting her ears toward the sound from the headphones. At this point, it was noted that it was getting uncomfortably hot (all members of the human team and the horses were sweating profusely). Neither horse exhibited a startle response to the thunder and did not attempt to move to the shelter in the lower pasture. Also, they maintained their posture while tape (1) was unloaded and tape (2) was inserted.

While listening to tape (2), Kerry Mist maintained her “ears alert” position. She became progressively more relaxed, as evidenced by her head position moving lower until it was no more than twelve inches from the ground. During this period, her manner changed to calmer and “looser,” i.e., more detached from the surroundings, as evidenced by her not swatting the numerous flies that landed on her. Her legs were no longer directly under her trunk and she was no longer standing straight. She did not tug on her rope to signal that she would prefer to move elsewhere, as she usually would during a rapidly approaching storm.

Kerry Mist maintained this demeanor until after the tape was turned off and the equipment and hood were removed. She then moved very slowly and lackadaisically (but not staggering), staying in the upper pasture only a few feet from where she had been listening to the tapes. Finally, she made a succession of six big yawns. This horse had never before been seen to make serial yawns!

These results show that the addition of a Theta-Delta Hemi-Sync program to a powerful meditation composition produces additional, easily visible behavioral effects.

Discussion

Horses become recumbent only about three hours out of each twenty-four. Horses only exhibit REM sleep during recumbency. Recumbency usually is exhibited during the night and is preceded by relaxation and head lowering until the head touches the ground. Since the subject horse in this study never before approached this almost recumbent state during a hot, humid day with an electrical storm rapidly approaching, it is probable that it was induced by the combination of a powerful meditation music tape plus the embedded Theta-Delta Hemi-Sync program. This evoking of behavioral change in an equine suggests the potential for numerous uses for various Hemi-Sync-embedded tapes with nonhuman animal species, including relaxing animals during transportation (transportation usually is stressful); inducing “relax-alert” before tasks; using concentration tapes for training animals that are hyperactive and have difficulties learning new tasks, etc.

The observation that Kerry Mist’s stable mate maintained his position behind her during the entire tape portion of this study suggests that it would be interesting to follow the EEG output of close pairs (“friends”) of animals, including humans, to determine whether the EEG output in the member of the pair not receiving direct audio stimulation changes to resemble the EEG output of the subject who has received the audio stimulation. In addition, future experiments now in the planning stage will investigate interspecies relationships, for example, those between Border collies and the sheep they herd.

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